

Synthesis of Antiferroelectric Liquid Crystal Material Containing Three Asymmetric Carbons

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A novel antiferroelectric liquid crystal compound, (S)-4-(2-chloro-3-(4-(2chloro)propyloxy) phenylpropionato-4'-(2-methyl)butyloxy-biph enylcarboxylate (CCPMBB), comprising of three asymmetric centres, has been synthesized using L-tyrosine as one of the chiral ingredients. The thermal and phase behaviour is studied by thermal microscopy (TM) and differential scanning calorimetry (DSC). The ferroelectric studies imply the existence of antiferroelectric phase and a wide thermal span of SM-C* phase. A comparative discussion is made towards the influence of the number of asymmetric centres (more than two in the present case) on the ferroelectric behaviour with its structural analogues.

Keywords: CCPMBB; AFLC; Spontaneous Polarization; Smectic-C_A*.